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APPLIED BEHAVIOR ANALYSIS FOR EDUCATORS: TEACHER CENTERED AND CLASSROOM BASED

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Fawcett (1990) has thrown down the gauntlet to behavior analysts, "Our challenge is to discover standards that optimize both rigor and relevance in the pursuit of understanding and action" (p. 65). For decades, behavior analysts have been working explicitly to develop a behavior-change technology to advance an array of classroom competencies for students of all ages and ability levels (Sulzer-Azaroff, 1986). With precision, rigor, and results as their hallmark, behavior analysts have documented, in literally hundreds of investigations and numerous specialty journals, the scope and effectiveness of their behavioral technology. However, there is now widespread recognition that these outstanding achievements are being virtually ignored by teachers (Axelrod, Moyer, & Berry, 1990). In effect, the relevance of these rigorous methods is being seriously questioned by many educators.

The fact is that many behavior-change interventions have been developed to improve the education process but few have been chosen (Sulzer-Azaroff, 1986). Some researchers have attempted to account for this phenomenon by asserting that teachers view behavioral technology as unacceptable because of possible misconceptions conveyed by the media and by attempts of editors to exclude behavioral findings from educational journals and texts (Greer, 1982, 1983). Others claim that it is our technical language that limits widespread use (Bailey, 1991; Lindsley, 1991). Still others have raised questions about the overall social validity of the technology and the generalization of treatment effects (Yeaton, 1982). These challenges question the social significance and relevancy of the changes produced, the durability of changes across time, the likelihood of changes spreading to nontreatment settings and behaviors, and the practical accessibility of this change technology for school personnel (Witt, 1986).

Whatever the reasons, lack of widespread use indicates that we must confront this problem and seriously reconsider our methods in light of our consumers and the settings in which they operate. To effect more durable and extensive classroom behavior change, we must develop school-based strategies that are both sensitive to the needs of our diverse student population and suitable for use in schools. In other words, our intervention technology challenge must be twofold: develop more adaptive and effective strategies to promote academic and social competency, and develop strategies that teachers and school personnel *can* and *will* actually use.

The purpose of this commentary is threefold: (a) to consider the crisis in education and the complex role teachers play in our society, (b) to examine critically major aspects of the traditional *modus operandi* of behavior analysis that are counter productive to teacher use, and (c) to identify practices related to promoting greater teacher use and thereby enhancing the relevance of behavioral technology in education.

Crisis in Education

The current mental health service delivery system in the U.S. is failing to meet the needs of the majority of our troubled children and families. Recent government estimates indicate that well over 70% of the approximately 9 million children who need treatment services do not receive them (Office of Assessment Technology, 1986). This alarming fact has caused many mental health professionals to recognize the necessity of enhancing the therapeutic as well as educative potential of school environments.

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Several factors make schools an ideal setting for identifying and treating children with academic and adjustment difficulties. First, teachers have the most extensive adult contact with children outside of the home. They have access to children for 6 hours a day, 5 days a week, and 40 weeks a year. Second, the availability of a large group of peers provides teachers with age- and gender-appropriate norms to help them identify adaptive and maladaptive behavior. Third, the school environment requires children to perform a wide variety of tasks requiring physical, cognitive, emotional, and social competencies. This array of expectations provides teachers with an excellent opportunity to witness students' relative strengths and weaknesses. However, these benefits are now minimized because teachers are struggling to meet a host of student needs with an ineffectual public education system.

Dramatic changes in the structure of the family and erosion of neighborhood and community relationships have placed schools in the position of assuming a greater responsibility for the socialization of children. Schools have been forced to extend well beyond the statutory mandates of the "three Rs" to activities that involve trying to repel societal threats, revamp policies and services, and supportively redirect children who are struggling to cope with a variety of stressors. The simple fact is that the demand created by the diverse educational and psychological needs of students today seriously exceeds the resources of our traditional educational systems.

Facing severe fiscal constraints and many complex problems that resist traditional solutions, public education is in severe crisis. The effects of this crisis are particularly acute for an expanding population of children who, for a variety of reasons (e.g., ethnicity, disadvantaged status associated with poverty, or familial discord and stress), do not fit readily into the mold of traditional instructional environments. There is a growing recognition among educators and behavior scientists that if school methods remain fixed and nonadaptive, schooling will become increasingly irrelevant for many children. Similarly, if the behavioral approach to education remains fixed and nonadaptive, it too will become increasingly irrelevant for educators.

Practices That Minimize Use

Applied behavior analysis has long differentiated itself from clinical methods that are not subjected to empirical validation and from investigations that obscure individual behavior change behind group averages and statistical significance. Accomplishing these goals entailed the development of a person-based, single-subject methodology designed to modify the aberrant behavior of an individual by studying how the person's unique set of circumstances influenced unwanted behavior. In this approach, significance was defined at the individual level, and assessment efforts were designed to detail precisely the functional relationship between environmental events and individual behavior change. However, there is as yet no rigorous behavior-analytic technology that reflects an appreciation for the factors involved in entering complex school systems.

Almost without exception, investigations of school-based interventions have taken the form of outside experts demonstrating the effectiveness of classroom interventions. Characteristically, the criterion of effectiveness for a behavioral intervention is a single-subject experimental design demonstrating noticeable behavior change that is not confounded by threats to internal validity. Typically this involves a unidirectional flow of technology and effort from the expert to the teacher or student. In other words, for the demonstration to take place, school personnel must rely on agents of change who are external to the natural system (e.g., research assistants or therapists), and on external resources to sustain these changes (e.g., experimenter-provided prompts or rewards). In essence, the classroom becomes an "applied lab" in order to indicate the degree to which the intervention can withstand the "noise" of a natural environment. The primary emphasis is on the demonstration, not the integration of the technology into the existing classroom environment. The role of the natural helper and the identification of naturally existing resources are

deemphasized or summarily neglected. This leaves the natural helpers (i.e., teachers) with the burden of making the outside helpers' methods useful and long lasting. "I made it happen," is the implied message of the researcher, "now you make it work!"

Given that the primary emphasis is on producing a short-term demonstration rather than establishing long-term relationships, the lack of generalization both within and across classrooms is to be expected. After we have established experimental (i.e., experimenter) control and found little evidence that our experimenter-centered demonstrations are sustained, we conjecture that natural resources and teacher involvement may have made a difference, but rarely are specific strategies for cultivating resources and ensuring involvement the major foci for investigations. As currently configured, effectiveness is defined solely by results from the demonstration. Generalization and social validity are considered afterthoughts relegated to post hoc discussions.

The impact of demonstrating experimental control without regard for the realities of the classroom context, such as realistic constraints on teachers' time and resources, is an artificial separation of the processes of empirical verification and utilization. The "noise" of the classroom and level of teacher participation, which are controlled but not studied, are precisely the domains that may hold the key to our understanding of classroom use. Demonstration and use can no longer be orthogonal processes with demonstration being the province of the experimenter/expert and application being the province of the teacher/novice. To promote teacher use of behavioral methods, there must be a shift from experimenter-centered demonstrations to teacher-centered consultation, and a shift from an intensive person-based technology to a more versatile classroom-based technology.

Practices That Promote Use

To bring about these beneficial shifts, the behavior analyst will need to consider practices designed to enable and empower teachers to effect relevant behavior change. This new orientation requires an affirmation of the teacher's position and an adjustment of the behavior analyst's role. First, we start with the recognition that (a) teachers are the chief contingency managers of their classrooms, (b) the classroom is their sphere of influence, and (c) they are solely responsible for the academic and social development of all the students in their charge. Second, we establish that the role of the behavior analyst is to discover constructive and respectful ways to influence teacher behavior; that is, to help teachers bring about positive classroom behavior changes for all students. This will be accomplished by practices designed to facilitate communication between the teacher and the behavior analyst, advance experimenter-teacher discovery of effective strategies, and promote teacher use of behavior analysis. A number of strategies from the consultation and community psychology literature may serve as a starting point for a serious consideration of beneficial practices (cf. Tolan, Keys, Chertok, & Jason, 1990). These practices relate to how the behavior analyst (a) enters school systems and works with teachers and administrators, (b) develops classroom-based interventions, and (c) assists teachers to determine how they can continue to use beneficial methods.

Entering the system and working with school personnel. Entry is rarely discussed in behavioral journals but is a critical process in effective consultation (Gallessich, 1982). At the outset, the behavior analyst must earn the trust and respect of teachers or teachers will not share important "insider" information with them and will not consider their concepts or methods. The reality is that the relationship between the experimenter and the teacher is typically a voluntary one in which the behavior analyst approaches the teacher as an "outside helper." Therefore, the experimenter's ultimate effectiveness is a function of gaining entry. As an insider, the experimenter can greatly influence the change process. As an outsider, he or she can only "train and hope" for influence.

There are basically two primary means for gaining entry into a school system to bring about change—expert and referent influence (Zins & Cur-

tis, 1984). To have expert influence, the behavior analyst must have knowledge and skills the teacher would like to possess. Referent influence, on the other hand, is a recognition that the teacher and experimenter share similar attitudes, beliefs, and values (e.g., about students, schooling, teaching, or the change process). However, given the misconceptions that many educators have about behavioral technology (Axelrod et al., 1990), it is apparent that the behavior analyst typically has minimal referent influence and therefore relies heavily on expert control. Although being viewed as an expert occasionally may be useful, expert control is usually restricted to a few specific areas (Zins & Curtis, 1984). Referent influence, on the other hand, is much more extensive. In the context of a trusting relationship, individuals have a broader capacity to influence each other's attitudes, beliefs, and practices. However, to establish referent influence, the behavior analyst must make a commitment to a particular school or district and let teachers and administrators get to know him or her in the context of concerns and struggles in their school. Activities that foster referent influence include chatting in the teachers' lounge over coffee or attending school functions (e.g., fairs, assemblies). These actions give teachers an opportunity to see that the behavior analyst is genuinely interested in their concerns and wants to help.

Once initial trust is established, the behavior analyst can more readily share his or her expertise and begin to develop a collaborative relationship centered on shared goals. This serves as the basis for developing a reciprocal relationship in which the teacher and the behavior analyst share knowledge to enable the teacher to effect behavior change for students. This requires involving teachers in the decision process at all levels by (a) selecting the goals for intervention, (b) considering how potent learning principles can be used to develop a workable classroom intervention, and (c) determining how the evaluation will be conducted and which criteria will be used to judge success.

This partnership has many benefits. By having teachers set the research agenda we are, by definition, making our efforts more relevant to educators. By giving teachers a voice, we will quickly identify which methods are workable and which methods are impractical. This will encourage a new field of study related to increasing our understanding of the classroom ecology, and will boost the development of useful classroom technology. Instead of speaking in an alien, technical jargon (Bailey, 1991; Lindsley, 1991), we will be developing a user-friendly language common to both educators and behavior analysts.

Classroom-based orientation. To ensure teacher application of behavior analysis procedures, we must understand how teachers typically approach classroom intervention. Practically and functionally, the teacher's focus is classroom based, not person based. Instead of designing 30 orthogonal, single-subject experiments, teachers start with a determination of classwide needs and structure interventions along a continuum from the entire class, to small groups, to individuals who need extra help. Geller, Ludwig, Gilmore, and Berry (1991) have proposed a multiple intervention level (MIL) hierarchy for community interventions that is applicable to classroom concerns.

The model views interventions on two major dimensions: intensity/influence and cost. The greater the intensity of the direct intervention, the greater the influence on the individual, and the greater the cost to the system to accomplish this change. Typically, applied behavior analysts develop interventions at the highest level of intensity to demonstrate significant behavior change. The principal objective is to ensure measurable behavior change irrespective of cost. However, for a teacher who is responsible for managing a complex classroom ecology, cost in time and personnel is a critical consideration. The MIL approach accounts for cost estimates by conceptualizing interventions at various levels of intensity and cost. Examples of low-intensity, low-cost interventions include increasing structure on the playground to reduce the overall level of aggression for most students (Murphy, Hutchison, & Bailey, 1983) or establishing a Good Behavior Game to reduce disruptive classroom behavior (Barrish, Saunders, & Wolf, 1969). These less intensive and more extensive interventions involve

classroom-wide application with minimal requirement for external resources.

In addition, Geller et al. (1991) propose that individuals who are beneficially influenced at less intensive levels of intervention may serve as agents of change for those individuals who need a more intensive and costly intervention program. Thus, for interventions that require more time and energy, teachers may use students who were successful at earlier levels to help monitor, guide, or instruct students who may require individual attention.

Geller et al. (1991) propose four levels in their model, each increasing in intensity and cost from its predecessor. The final, Level 4, intervention in this hierarchy resembles the intensive type of intervention typically used by behavior analysts to treat disruptive classroom behavior. The MIL approach, however, is more responsive to classroom ecology than the traditional behavioral approach in three ways. First, early levels identify and develop competencies in peers that enable them to serve as agents of change for more intensive levels of intervention. Second, the teacher is a partner in this intervention process, and therefore the logic of more intensive intervention is clearer than if he or she were asked to interrupt regular classroom functioning to implement an intensive intervention for a single child. That is, instead of the behavioral intervention being an abrupt interruption, with an MIL approach it is part of an ongoing classwide improvement process that accounts for and therefore justifies increasingly greater expenditure of time and energy. Third, and perhaps most critical, moving from large group to individual needs is congruent with traditional teacher problem-solving methods. For example, teachers typically develop instructional strategies for the class as a whole before making adjustments for students who were not initially reached by classwide instruction.

Sustaining beneficial methods. Instead of a short-term classroom demonstration, the objective is to develop durable methods that can be incorporated into teachers' daily routines. To obtain this objective will require a realistic appraisal of the costs needed to sustain these methods. As mentioned above, the behavior analyst, in collaboration with teachers, must attend earnestly to cost issues when designing and evaluating new methods. It does not benefit students and teachers to develop interventions that cannot be sustained due to insufficient resources. The teacher and experimenter must identify existing natural resources, find ways to cultivate these resources, and determine how they can apply these resources to sustain teacher use of new methods.

Peer, family, and larger community systems hold great potential as sources of indigenous support and influence for teachers. In the MIL approach, we have indicated how peers could be used as an added resource to teachers. In addition, we must find productive ways to draw more support from parents, school and district administrators, and members of the community, such as community and business leaders. Peer tutoring, parental involvement, district-wide incentive programs for teachers, and media and private industry sponsorship of creative programs represent a reservoir of yet untapped resources.

Summary

Twenty years or more of behavior analysis in education indicate that our methodologies and premises require adjustment. We have confined ourselves for too long to experimenter-centered demonstrations, artificially separated from considerations of teacher use. What is needed is a teacher-centered technology that enables teachers to use useful procedures. Thus, we propose a new standard for judging the effectiveness of behavioral classroom-based interventions: natural helpers affecting relevant behavior change across time with sustained support from their own school system and community.

It is time we left the realm of demonstration and joined beleaguered colleagues in education. These colleagues are facing two overwhelming and menacing realities: a multitude of student differences and a monolithic educational bureaucracy. Like Odysseus navigating Scylla and Charybdis, behavior analysts must craft methods that are responsive simultaneously to both student diversity and institutional constraint or fall victim to one or both.

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